AMENDMENTS TO THE CLAIMS:

Please cancel claim 86 without prejudice or disclaimer, and amend the claims as follows:

1. (Currently Amended) A light-emitting apparatus, comprising:

a primary light source comprising a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer; and

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs said first light of a first wavelength and emits a second light of a second wavelength, which is greater than said first wavelength, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

2. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said secondary light source is disposed above said primary light source,

a part of said first light emitted by said primary light source is transmitted through said fluorescent material resin, and

another part of said first light emitted by said primary light source is absorbed by said fluorescent material, said fluorescent material then emits said second light, and said second light emitted by said fluorescent material and said first light emitted by said primary light source are mixed, to thereby generate a mixed light, emitted from said light-emitting apparatus, that is different in luminescent color from said first light emitted by said primary light source.

3. (Previously Presented) A light-emitting apparatus according to claim 2, wherein said fluorescent material resin comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

4-5. (Canceled)

6. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said sealing member comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

7. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said sealing member is shaped like a bullet.

8. (Canceled)

9. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said fluorescent material resin and said sealing member comprise one material.

10. (Previously Presented) A light-emitting apparatus according to claim 2, wherein said GaN semiconductor light-emitting device comprises a chip.

11. (Currently Amended) A light-emitting apparatus, comprising:

a primary light source comprising a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device, comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer; and

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Eu and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs said first light of a first wavelength and emits said second light of a second wavelength, which is greater than said first wavelength, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

12. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said secondary light source is disposed above said primary light source,

a part of said first light emitted by said primary light source is transmitted through said fluorescent material resin, and

another part of said first light emitted by said primary light source is absorbed by said fluorescent material, said fluorescent material then emits said second light, and said second light emitted by said fluorescent material and said first light emitted by said primary light source are mixed, to thereby generate a mixed light, emitted from said light-

emitting apparatus, that is different in luminescent color from said first light emitted by said primary light source.

13. (Previously Presented) A light-emitting apparatus according to claim 12, wherein said fluorescent material resin comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

14-15. (Canceled)

16. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said sealing member comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

17. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said sealing member is shaped like a bullet.

18. (Previously Presented) A light-emitting apparatus according to claim 12, wherein a concentration of said fluorescent material changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

19. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said fluorescent material resin and said sealing member comprise one material.

20. (Previously Presented) A light-emitting apparatus according to claim 12, wherein said GaN semiconductor light-emitting device comprises a chip.

21. (Currently Amended) A light-emitting apparatus, comprising:

a first light source comprising a GaN semiconductor light-emitting device that emits a blue light having a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device, comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer; and

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a second light source including a first fluorescent material that absorbs said blue light emitted by said first light source and emits a green light and a fluorescent material resin, said first fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source;

a third light source that emits a red light; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said blue light emitted by said first light source, said green light emitted by said second light source, and said red light emitted by said third light source are mixed to thereby generate white light, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

22. (Previously Presented) A light-emitting apparatus according to claim 21, wherein said first fluorescent material comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; ZnS:Eu; and Y_2O_2S:Ce.

23-24. (Canceled)

25. (Original) A light-emitting apparatus according to claim 21, wherein said third light source includes a semiconductor light-emitting device for emitting red light.

26. (Previously Presented) A light-emitting apparatus according to claim 41, wherein

said first fluorescent material and said second fluorescent material are dispersed in said fluorescent material resin, which is disposed above said GaN semiconductor light-emitting device,

a part of said blue light emitted by said first light source is transmitted through said fluorescent material resin, and

another part of said blue light emitted by said first light source is absorbed by said first fluorescent material, which emits said green light, and said second fluorescent material, which emits said red light, and said blue light emitted by said first light source, said green light emitted by said first fluorescent material, and said red light emitted by

said second fluorescent material are mixed, to thereby generate a mixed light, emitted from said light-emitting apparatus, different in luminescent color from the said blue light emitted from said first light source.

27. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said fluorescent material resin comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

28. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said fluorescent material resin is disposed above said GaN semiconductor light-emitting device.

29. (Canceled)

30. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said sealing member comprises at least one of epoxy resin, silicone resin, urea resin, and glass.

31. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said sealing member is shaped like a bullet.

32. (Previously Presented) A light-emitting apparatus according to claim 26, wherein a concentration of at least one of said first fluorescent material and said second

fluorescent material changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

33. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said fluorescent material resin and said sealing member comprise one material.

34. (Previously Presented) A light-emitting apparatus according to claim 26, wherein said GaN semiconductor light-emitting device comprises a chip.

35-37. (Canceled)

38. (Previously Presented) The light-emitting apparatus according to claim 1, wherein a substrate of said GaN semiconductor light-emitting device comprises sapphire.

39. (Previously Presented) The light-emitting apparatus according to claim 11, wherein a substrate of said GaN semiconductor light-emitting device comprises sapphire.

40. (Previously Presented) The light-emitting apparatus according to claim 21, wherein a substrate of said GaN semiconductor light-emitting device comprises sapphire.

41. (Previously Presented) A light-emitting apparatus according to claim 21, wherein said third light source includes a second fluorescent material that absorbs said blue light emitted by said first light source and emits said red light.

42. (Currently Amended) A light-emitting apparatus, comprising:

a box including a cup portion including a bottom surface, said bottom surface including a first electrode and a second electrode;

a primary light source including a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm and is fixed to one of said first electrode and said second electrode, said GaN semiconductor light-emitting device, including:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer;

a secondary light source including a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; Y_2O_2S:Ce; and ZnS:Cu, and a resin, said fluorescent material being dispersed within said resin, and said resin being contained in said cup portion; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs light of said first wavelength and emits light of a second wavelength, which is greater than said first wavelength, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

43. (Previously Presented) A display device, comprising a plurality of light-emitting device (LED) units, wherein each of said plurality of LED units comprises:

a red LED, a green LED, and a blue LED; and

a light-emitting apparatus, according to claim 1, that emits white light.

44. (Previously Presented) A display device, comprising a plurality of light-emitting device (LED) units, wherein each of said plurality of LED units comprises:

a red LED, a green LED, and a blue LED; and

a light-emitting apparatus, according to claim 11, that emits white light.

45. (Previously Presented) A display device, comprising a plurality of light-emitting device (LED) units, wherein each of said plurality of LED units comprises:

a red LED, a green LED, and a blue LED;

a light-emitting apparatus, according to claim 41, that emits white light.

46. (Previously Presented) A vehicular signal display device comprising a plurality of light-emitting apparatuses according to claim 1, wherein said plurality of light-emitting apparatuses comprise a matrix, a portion of said matrix being controlled by a controller, which turns said portion on or off.

47-49. (Canceled)

50. (Previously Presented) A light-emitting apparatus according to claim 41, wherein said fluorescent material resin comprises a first fluorescent material resin and a second fluorescent material resin, said first fluorescent material is dispersed in said first fluorescent material resin, which is disposed directly above said GaN semiconductor light-emitting device, and said second fluorescent material is dispersed in said second fluorescent material resin, which is disposed on said first fluorescent material resin.

51. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said light-emitting layer comprises a multiple quantum well structure.

52. (Previously Presented) A light-emitting apparatus according to claim 51, wherein said multiple quantum well structure comprises well layers comprised of InGaN.

53. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said light-emitting layer comprises a multiple quantum well structure.

54. (Previously Presented) A light-emitting apparatus according to claim 53, wherein said multiple quantum well structure comprises well layers comprised of InGaN.

55. (Previously Presented) A light-emitting apparatus according to claim 21, wherein said light-emitting layer comprises a multiple quantum well structure.

56. (Previously Presented) A light-emitting apparatus according to claim 55, wherein said multiple quantum well structure comprises well layers comprised of InGaN.

57. (Previously Presented) A light-emitting apparatus according to claim 42, wherein said light-emitting layer comprises a multiple quantum well structure.

58. (Previously Presented) A light-emitting apparatus according to claim 57, wherein said multiple quantum well structure comprises well layers comprised of InGaN.

59. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said single reflective layer is directly disposed on said surface of said substrate and said surface is opposite to a side wherein said light-emitting layer is located.

60. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said single reflective layer is directly disposed on said surface of said substrate and said surface is opposite to a side wherein said light-emitting layer is located.

61. (Previously Presented) A light-emitting apparatus according to claim 21, wherein said single reflective layer is directly disposed on said surface of said substrate and said surface is opposite to a side wherein said light-emitting layer is located.

62. (Previously Presented) A light-emitting apparatus according to claim 42, wherein said single reflective layer is directly disposed on said surface of said substrate and said surface is opposite to a side wherein said light-emitting layer is located.

63. (Currently Amended) A light-emitting apparatus, comprising:

a primary light source comprising a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer;

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs said first light of a first wavelength and emits a second light of a second wavelength, which is greater than said first wavelength,

wherein said light-emitting layer comprises a multiple quantum well structure,

wherein said multiple quantum well structure comprises well layers comprised of InGaN,

wherein said single reflective layer is directly disposed on said surface of said substrate and said surface is opposite to a side wherein said light-emitting layer is located, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

64. (Currently Amended) A light-emitting apparatus, comprising:

a primary light source comprising a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device, comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer;

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Eu and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs said first light of a first wavelength and emits said second light of a second wavelength, which is greater than said first wavelength,

wherein said light-emitting layer comprises a multiple quantum well structure,

wherein said multiple quantum well structure comprises well layers comprised of InGaN, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

65. (Currently Amended) A light-emitting apparatus, comprising:

a first light source comprising a GaN semiconductor light-emitting device that emits a blue light having a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device, comprising:

a single reflective layer;

a transparent electrode disposed above said single reflective layer; and

a leadframe comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a second light source including a first fluorescent material that absorbs said blue light emitted by said first light source and emits a green light and a fluorescent material

resin, said first fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being contained in said cup portion;

a sealing member that focuses light emitted from said light-emitting apparatus, said sealing member being disposed above said secondary light source;

a third light source that emits a red light; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said blue light emitted by said first light source, said green light emitted by said second light source, and said red light emitted by said third light source are mixed to thereby generate white light,

wherein said light-emitting layer comprises a multiple quantum well structure,

wherein said multiple quantum well structure comprises well layers comprised of InGaN, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

66. (Currently Amended) A light-emitting apparatus, comprising:

a box including a cup portion including a bottom surface, said bottom surface including a first electrode and a second electrode;

a primary light source including a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm and is fixed to one of said first

electrode and said second electrode, said GaN semiconductor light-emitting device, including:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer;

a secondary light source including a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; Y_2O_2S:Ce; and ZnS:Cu, and a resin, said fluorescent material being dispersed within said resin, and said resin being contained in said cup portion; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs light of said first wavelength and emits light of a second wavelength, which is greater than said first wavelength,

wherein said light-emitting layer comprises a multiple quantum well structure,

wherein said multiple quantum well structure comprises well layers comprised on InGaN, and

wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device.

67. (Previously Presented) A light-emitting element apparatus according to claim 1, wherein said secondary light source comprises Y_2O_2S:Ce.

68. (Previously Presented) A light-emitting apparatus according to claim 1, wherein

said transparent electrode comprises a thin film comprising gold.

69. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said light-emitting device further comprises:

a substrate; and

a light-emitting layer configured to emit light disposed over said substrate.

70. (Previously Presented) A light-emitting apparatus according to claim 69, wherein said single reflective layer is disposed between said light-emitting layer and said substrate.

71. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said single reflective layer comprises at least one of a metal nitride and a metal.

72. (Previously Presented) A light-emitting element according to claim 1, wherein said primary light source comprises a plurality of light-emitting devices, each of said plurality of light-emitting devices having a same configuration.

73. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said primary light source further comprises:

a second, separate light-emitting device mounted on said cup portion of said lead frame, said second separate light-emitting device comprising a gallium-aluminum-arsenic red light-emitting device.

74. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said primary light source further comprises:

a second separate light-emitting device mounted on a cup portion of a second lead frame,

wherein said second lead frame is separate from said lead frame.

75. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said secondary light source further comprises:

a second fluorescent material dispersed in said fluorescent material resin, said first fluorescent material and said second fluorescent material being uniformly dispersed in said fluorescent material resin.

76. (Previously Presented) A light-emitting apparatus according to claim 51, wherein said multiple quantum well structure comprises well layers comprised of In_xGa_yN ($0 \leq x \leq 1$, $0 \leq y \leq 1$, $x+y = 1$) and barrier layers comprised of GaN,

wherein said well layers and said barrier layers are disposed alternately in said multiple quantum well structure.

77. (Previously Presented) A light-emitting element apparatus according to claim 76, wherein said well layers are comprised of $In_{0.15}Ga_{0.85}N$.

78. (Previously Presented) A light-emitting apparatus according to claim 1, wherein

said filler comprises a silver paste.

79. (Previously Presented) A light-emitting apparatus according to claim 11, wherein said filler comprises a silver paste.

80. (Previously Presented) A light-emitting apparatus according to claim 21, wherein said filler comprises a silver paste.

81. (Previously Presented) A light-emitting apparatus according to claim 42, wherein said filler comprises a silver paste.

82. (Previously Presented) A light-emitting apparatus according to claim 63, wherein said filler comprises a silver paste.

83. (Previously Presented) A light-emitting apparatus according to claim 64, wherein said filler comprises a silver paste.

84. (Previously Presented) A light-emitting apparatus according to claim 65, wherein said filler comprises a silver paste.

85. (Previously Presented) A light-emitting apparatus according to claim 66, wherein said filler comprises a silver paste.

86. (Cancel)

87. (Previously Presented) A light-emitting apparatus according to claim 1, wherein said concentration of said fluoresecent material decreases as a location of the fluorescent material becomes nearer to said GaN semiconductor light-emitting device.

88. (Previously Presented) A light-emitting apparatus, comprising:

a primary light source comprising a GaN semiconductor light-emitting device that emits a first light of a wavelength of 380 nm to 500 nm, said GaN semiconductor light-emitting device comprising:

a single reflective layer; and

a transparent electrode disposed above said single reflective layer;

a lead frame comprising a cup portion including a bottom surface on which said GaN semiconductor light-emitting device is mounted;

a sealing member that focuses light emitted from said light-emitting apparatus;

a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being formed over said sealing member; and

an adhesive layer for securing said light-emitting device in said cup portion of said lead frame, said adhesive layer comprising a filler,

wherein said fluorescent material absorbs said first light of a first wavelength and emits a second light of a second wavelength, which is greater than said first wavelength.

REMARKS

As a preliminary matter, Applicants request the Examiner to place a complete rejection on record in preparation of Appeal, including reasonable motivations to modify a clearly identified primary reference. As indicated, below, the Examiner has not provided any motivation for combining the features of the secondary references and the Examiner's rejections in the present Office Action merely address the newly added claim limitations, without pointing out which reference teaches or suggests each and every feature of the claimed invention.

Claims 1-3, 6-13, 16-22, 25-28, 30-34, 38-46, 50-85, 87 and 88 are all of the claims presently pending in the application. Claims 1, 11, 21, 42, 49 and 63-66 have been amended to more particularly define the invention. Claim 86 has been canceled without prejudice or disclaimer.

Entry of this Amendment is believed proper since no new issues are being presented to the Examiner that would require further consideration and/or search. Indeed, the previously considered subject of claim 86 has merely been incorporated into the independent claims.

Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claim 86 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1-3, 6, 7, 9, 10, 21, 22, 26-28, 30-34, 38, 40-42, 59, 61, 62, 67, 78, 78, 80, 81 and 86-88 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,252,254 to Soules et al. (hereinafter "Soules"), in view of U.S. Patent No. 5,847,507 to

Butterworth et al. (hereinafter "Butterworth"), U.S. Patent No. 5,798,536 to Tsutsui, U.S. Patent No. 5,877,558 to Nakamura et al. (hereinafter "Nakamura") and U.S. Patent No. 6,340,824 to Komoto et al. (hereinafter "Komoto"). Claims 11-13, 16-20, 39, 60 and 79 stand rejected under 35 U.S.C. §103(a) as unpatentable over Soules, Butterworth, Tsutsui, Nakamura and Komoto as applied to the claims above, and further in view of U.S. Patent No. 6,153,123 to Hampden-Smith et al. (hereinafter "Hampden-Smith"). Claims 25, 69-71, 73 and 74 stand rejected under 35 U.S.C. §103(a) as unpatentable over Soules, Butterworth, Tsutsui, Nakamura and Komoto as applied to the claims above, and further in view of U.S. Patent No. 6,166,489 to Thompson et al. (hereinafter "Thompson"). Claims 46, 49, 50, 72 and 75 stand rejected under 35 U.S.C. §103(a) as unpatentable over Soules, Butterworth, Tsutsui, Nakamura, Hampden-Smith as applied to the claims above, and further in view of Komoto. Claims 43-45, 63-66 and 82-85 stand rejected under 35 U.S.C. §103(a) as unpatentable over Soules, Butterworth, Tsutsui, Nakamura and Komoto as applied to the claims above, and further in view of U.S. Patent No.5,998,925 to Shimizu et al. (hereinafter "Shimizu"). Claims 51-58, 76 and 77 stand rejected under 35 U.S.C. §103(a) as unpatentable over Soules, Butterworth, Tsutsui, Nakamura and Komoto as applied to the claims above, and further in view of U.S. Patent No. 6,335,217 to Chiyo et al. (hereinafter "Chiyo").

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 1 provides a light-emitting apparatus wherein a concentration of the fluorescent material continuously changes within the

fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device (see Application at page 8, lines 2-19).

The claimed invention of exemplary claim 88 provides a light-emitting apparatus including a secondary light source comprising a fluorescent material that includes at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; and Y_2O_2S:Ce, and a fluorescent material resin, the fluorescent material being dispersed within the fluorescent material resin, and the fluorescent material resin being formed over the sealing member (e.g., see Application at Figure 12).

The claimed invention provides a light-emitting apparatus of high luminance and high efficiency (see Application at page 3, lines 9-13).

II. THE INDEFINITENESS REJECTION

Claim 86 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Specifically, the Examiner alleges that the term "continuously changes" is indefinite. The Examiner, however, is clearly incorrect.

That is, M.P.E.P. § 2173.02 states "[i]n reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider that claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope". The language of the claim must set forth the metes and bounds of the invention.

Applicants submit that the claimed language clearly sets forth the metes and bounds of the claimed invention. Indeed, a person of ordinary skill in the art, considering the plain meaning of the claim terminology, would clearly understand the meaning of the

phrase "continuously changes" when viewed in the context of "...a function of distance...". Thus, the standard set forth in the M.P.E.P. is clearly met by Applicants' claim language.

Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

III. THE PRIOR ART REFERENCES

A. The Soules Reference

Applicants submit that there are elements of the claimed invention that are not taught or suggested by Soules.

That is, Soules does not teach or suggest "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

The novel combination of features of the claimed invention is not taught or suggested by Soules. The Examiner attempts to rely on Figure 2 of Soules to support his allegations. The Examiner, however, is clearly incorrect.

That is, nowhere in this figure (nor anywhere else for that matter) does Soules teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. Indeed, nowhere does Soules even mention that the concentration of the fluorescent material continuously changes, let alone teach or suggest the limitation

of the claimed invention. The Examiner does not even allege that Soules teaches or suggests this feature.

B. The Butterworth Reference

Applicants submit that there are elements of the claimed invention that are not taught or suggested by Butterworth.

That is, Butterworth does not teach or suggest "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

The novel combination of features of the claimed invention is not taught or suggested by Butterworth. Indeed, the Examiner does not even allege that Butterworth teaches or suggests that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. The Examiner merely relies upon Butterworth as teaching that a flourescent-material-containing resin may be contained in the cup portion of a cup-shaped lead frame with a transparent resin sealing member formed thereabove.

Butterworth merely discloses a white LED 100 that includes a blue emitting gallium nitride (GaN) die 110 mounted on a reflector cup lead frame 120 (col. 1, lines 31-35). A blob of cerium (Ce) activated yttrium aluminum garnet (YAG) phosphor 130 is placed on top of the LED die 110 (col. 1, lines 36-38).

C. The Tsutsui Reference

Applicants submit that there are elements of the claimed invention that are not taught or suggested by Tsutsui.

That is, Tsutsui does not teach or suggest "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

The novel combination of features of the claimed invention is not taught or suggested by Tsutsui. Indeed, the Examiner does not even allege that Tsutsui teaches or suggests that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. The Examiner merely relies upon Tsutsui as teaching a GaN emitter formed on a sapphire substrate and for teaching that the GaN chip may further possess a light reflection film 11 on the rear side of the sapphire substrate for reflecting light that is directed toward the substrate and back toward the front, upper light emission surface.

D. The Nakamura Reference

Applicants submit that there are elements of the claimed invention that are not taught or suggested by Nakamura.

That is, Nakamura does not teach or suggest "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

The novel combination of features of the claimed invention is not taught or suggested by Nakamura. Indeed, the Examiner merely attempts to rely on the light transmitting electrode (15) of Nakamura as teaching the transparent electrode of the claimed invention.

Nowhere, however, does Nakamura teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. Indeed, nowhere does Nakamura even mention that the concentration of the fluorescent material continuously changes, let alone teach or suggest the limitation of the claimed invention. The Examiner does not even allege that Nakamura teaches or suggests this feature.

E. The Komoto Reference

The Examiner alleges that Komoto would have been combined with Soules, Butterworth, Tsutsui and Nakamura to teach the claimed invention of 1-3, 6, 7, 9, 10, 21, 22, 26-28, 30-34, 38, 40-42, 59, 61, 62, 67, 78, 78, 80, 81 and 86-88. Applicants submit, however, that these references would not have been combined as alleged by the Examiner and that, even if combined, the alleged combination of references would not teach or suggest each and every element of the claimed invention.

That is, neither Soules, Butterworth, Tsutsui, Nakamura, nor Komoto, nor any combination thereof, teaches or suggests "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

Indeed, as indicated above in sections A-D, Soules, Butterworth, Tsutsui, and Nakamura fail to teach or suggest this feature. Furthermore, Applicants respectfully submit that Komoto fails to make up the deficiencies of Soules, Butterworth, Tsutsui, and Nakamura.

That is, section 2142 of the MPEP states: "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." (Emphasis added).

However, the Examiner, with respect to the limitations that were newly added to the independent claims, as well as the limitations recited in dependent claims 86 and 87, has not provided any motivation or suggestion for combining the teachings of Komoto with Soules, Butterworth, Tsutsui, and Nakamura. Indeed, the Examiner merely alleges that Komoto teaches a "gradient dispersion of fluorescent material in a resin", that the resin curing of Komoto "would result in a continuously changing concentration of fluor" (in reference to dependent claim 86), "a gradually larger concentration of fluor away from the emitter due to precipitation" (in reference to dependent claim 87), and "a sealing member resin in the form of a lens and fluor material over the resin" (in reference to independent claim 88) (see Office Action dated April 24, 2006 at page 2).

The Examiner appears to be alleging that the mere presence of the disclosure of a feature in Komoto is sufficient to find that it would have been obvious to modify the Soules, Butterworth, Tsutsui, and Nakamura references based upon this disclosure.

However, the Examiner cannot merely gather a large number of prior art reference which each include some portion of the features recited in the claims and allege that the mere disclosure of the features in the combination of references is sufficient to allege obviousness of the claimed invention.

Rather, "[t]he mere fact that references can be combined or modified does not render the resultant combination unless the prior art also suggests the desirability of the combination." (Emphasis added, M.P.E.P. § 2143.01).

Moreover, the novel combination of features of the claimed invention is not taught or suggested by Komoto. The Examiner attempts to rely upon column 24, lines 12-22, columns 27 and 28, and Figures 27B, 28B, 29B and 34B of Komoto to support his allegations.

Nowhere, however, in these passages or these figures (nor anywhere else for that matter) does Komoto teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. Indeed, Komoto merely teaches a high concentration fluorescent material region on a surface of a resin.

That is, referring to Figure 27B (as relied upon by the Examiner), Komoto teaches a resin (290) having a high concentration region (290A) formed on a surface of the resin. Nowhere, however, does Komoto teach or suggest that a concentration of the fluorescent material in the resin changes continuously through the resin. The Examiner alleges that the gravitational precipitation of the fluorescent material during curing would result in a continuously changing concentration (see Office Action dated April 24, 2006 at page 2).

However, the Examiner provides no support in Komoto, nor anywhere else for that matter, to support his allegations.

Komoto merely teaches a resin having a high concentration region formed on a surface of the resin.

Moreover, neither Soules, Butterworth, Tsutsui, Nakamura nor Komoto, nor any combination thereof, teaches or suggests "*a secondary light source comprising a fluorescent material that comprises at least one of ZnS:Cu, Au, Al; ZnS:Cu, Al; ZnS:Cu; and Y_2O_2S:Ce, and a fluorescent material resin, said fluorescent material being dispersed within said fluorescent material resin, and said fluorescent material resin being formed over said sealing member*", as recited in exemplary claim 88.

Indeed, the Examiner does not even allege that Soules, Butterworth, Tsutsui nor Nakamura teaches or suggests this feature. The Examiner attempts to rely on Komoto to make up the deficiencies of Soules, Butterworth, Tsutsui nor Nakamura.

That is, the Examiner alleges that Komoto teaches "a sealing member resin in the form of a lens and flour material over the resin" (see Office Action dated April 24, 2006 at page 2). The Examiner, however, is clearly incorrect.

The claimed invention of exemplary claim 88, as indicated above, clearly recites that the fluorescent material resin is formed over the sealing member. This feature is not taught or suggested by Komoto.

In stark contrast, Komoto teaches a light emitting element (990) that is covered by a resin (140D). The resin includes a cavity (142) formed therein. A fluorescent material layer (FL) is formed on the inside of the cavity (142) (see Komoto at Figure 35 and columns 27 and 28, as relied upon by the Examiner). The resin (140D), which the

Examiner analogizes to the sealing member of the claimed invention, is formed over the fluorescent material resin.

Thus, Komoto fails to provide the deficiencies of Soules, Butterworth, Tsutsui, and Nakamura.

Therefore, Applicants submit that these references, even if combined, would not teach or suggest each and every element of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw these rejections.

F. The Hampden-Smith Reference

The Examiner alleges that Hampden-Smith would have been combined with Soules, Butterworth, Tsutsui, Komoto and Nakamura to teach the claimed invention of claims 11-13, 16-20, 39, 60 and 79. Furthermore the Examiner alleges that Hampden-Smith would have been combined with Soules, Butterworth, Tsutsui, Komoto and Nakamura to teach the claimed invention of claims 46, 49, 50, 72 and 75. Applicants submit, however, that these references, even if combined, would not teach or suggest each and every element of the claimed invention.

That is, neither Soules, Butterworth, Tsutsui, Nakamura nor Hampden-Smith, nor any combination thereof, teaches or suggests "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

Indeed, as indicated above in sections A-E, Soules, Butterworth, Tsutsui, Komoto and Nakamura fail to teach or suggest this feature. Furthermore, Applicants respectfully

submit that Hampden-Smith fails to make up the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

The novel combination of features of the claimed invention is not taught or suggested by Hampden-Smith. Indeed, the Examiner merely attempts to rely on Hampden-Smith as allegedly teaching various sulfur-containing phosphors that can be used in an array of applications including photoluminescence. The Examiner relies upon columns 35-37 of Hampden-Smith to support his allegations.

Nowhere, however, in this passage (nor anywhere else for that matter) does Hampden-Smith teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. Indeed, Hampden-Smith merely teaches using ZnS:Eu, Cu, Au and Al phosphors for various hues of blue/green light and CaS:Eu for red light (see Hampden-Smith at column 36, lines 8-19). The Examiner does not even allege that Hampden-Smith teaches that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device.

Thus, Hampden-Smith fails to make up for the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

Therefore, Applicants submit that these references, even if combined, would not teach or suggest each and every element of the claimed invention. Therefore the Examiner is respectfully requested to withdraw these rejections.

G. The Thompson Reference

The Examiner alleges that Thompson would have been combined with Soules, Butterworth, Tsutsui, Komoto and Nakamura to teach the claimed invention of claims 25, 69-71, 73 and 74. Applicants submit, however, that these references, even if combined, would not teach or suggest each and every element of the claimed invention.

That is, neither Soules, Butterworth, Tsutsui, Nakamura, Komoto nor Thompson, nor any combination thereof, teaches or suggests "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

Indeed, as indicated above in sections A-E, Soules, Butterworth, Tsutsui, Komoto and Nakamura fail to teach or suggest this feature. Furthermore, Applicants respectfully submit that Thompson fails to make up the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

The novel combination of features of the claimed invention is not taught or suggested by Thompson. Indeed, the Examiner merely attempts to rely on Thompson as allegedly teaching a full-color LED assembly including two LEDs and a photoluminescent downconverter phosphor disposed for re-emission of longer wavelength light in response to light that is emitted from only one of the two LEDs. The Examiner relies upon the disclosure of Thompson to support his allegations.

Nowhere, however, in this passage (nor anywhere else for that matter) does Thompson teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN

semiconductor light-emitting device. Indeed, the Examiner does not even allege that Thompson teaches that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device.

Thus, Thompson fails to make up for the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

Therefore, Applicants submit that these references, even if combined, would not teach or suggest each and every element of the claimed invention. Therefore the Examiner is respectfully requested to withdraw these rejections.

H. The Shimizu Reference

The Examiner alleges that Shimizu would have been combined with Soules, Butterworth, Tsutsui, Komoto and Nakamura to teach the claimed invention of claims 43-45, 63-66 and 82-85. Applicants submit, however, that even if these references were combined, the combination would not teach or suggest each and every element of the claimed invention.

That is, neither Soules, Butterworth, Tsutsui, Nakamura, Komoto nor Shimizu, nor any combination thereof, teaches or suggests "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

Indeed, as indicated above in sections A-E, Soules, Butterworth, Tsutsui, Komoto and Nakamura fail to teach or suggest this feature. Furthermore, Applicants respectfully

submit that Shimizu fails to make up the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

The novel combination of features of the claimed invention is not taught or suggested by Shimizu. Indeed, the Examiner merely attempts to rely on Shimizu as allegedly teaching that it was conventionally known to provide LED groups including R, G, B and W LEDs for various conventional light purposes. The Examiner relies upon Figure 12 of Shimizu to support his allegations.

Nowhere, however, in this figure (nor anywhere else for that matter) does Shimizu teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device. Indeed, the Examiner does not even allege that Shimizu teaches that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device.

Thus, Shimizu fails to make up for the deficiencies of Soules, Butterworth, Tsutsui, Komoto and Nakamura.

Therefore, Applicants submit that these references, even if combined, would not teach or suggest each and every element of the claimed invention. Therefore the Examiner is respectfully requested to withdraw these rejections.

I. The Chiyo Reference

The Examiner alleges that Chiyo would have been combined with Soules, Butterworth, Tsutsui, Komoto, Hampden-Smith and Nakamura to teach the claimed invention of claims 51-58, 76 and 77. Applicants submit, however, that even if these references were combined, the combination would not teach or suggest each and every element of the claimed invention.

That is, neither Soules, Butterworth, Tsutsui, Nakamura, Komoto, Hampden-Smith nor Chiyo, nor any combination thereof, teaches or suggests "*wherein a concentration of said fluorescent material continuously changes within said fluorescent material resin, as a function of distance to said GaN semiconductor light-emitting device*", as recited in independent claim 1, and similarly recited in independent claims 11, 21, 42 and 63-66.

Indeed, as indicated above in sections A-F, Soules, Butterworth, Tsutsui, Komoto, Hampden-Smith and Nakamura fail to teach or suggest this feature. Furthermore, Applicants respectfully submit that Chiyo fails to make up the deficiencies of Soules, Butterworth, Tsutsui, Komoto, Hampden-Smith and Nakamura.

The novel combination of features of the claimed invention is not taught or suggested by Chiyo. Indeed, the Examiner merely attempts to rely on Chiyo as allegedly teaching that the blue-emitting LED active region may be composed of InGaN MQWs. The Examiner relies upon column 12, lines 57-65 of Chiyo to support his allegations.

Nowhere, however, in this figure (nor anywhere else for that matter) does Chiyo teach or suggest that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor

light-emitting device. Indeed, the Examiner does not even allege that Chiyo teaches that a concentration of the fluorescent material continuously changes within the fluorescent material resin, as a function of distance to the GaN semiconductor light-emitting device.

Thus, Chiyo fails to provide the deficiencies of Soules, Butterworth, Tsutsui, Komoto, Hampden-Smith and Nakamura.

Therefore, Applicants submit that these references, even if combined, would not teach or suggest each and every element of the claimed invention. Therefore the Examiner is respectfully requested to withdraw these rejections.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1-3, 6-13, 16-22, 25-28, 30-34, 38-46 and 50-85, 87 and 88, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.